

Part number notation

The part number noted on the following pages is a conventional part number.

The new Matsushita global number is:

CNZ1110

ON1110

Photo Interrupter

For contactless SW, object detection

Outline

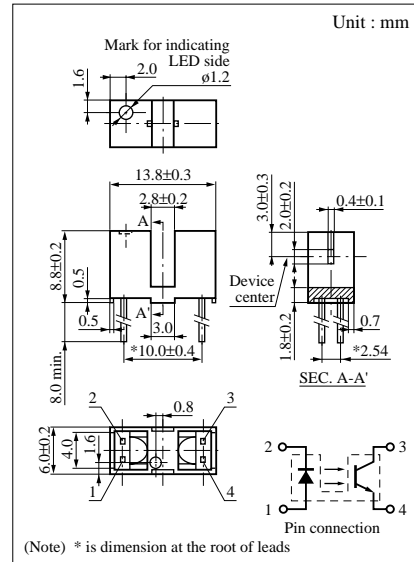
ON1110 is a photocoupler in which a high efficiency GaAs infrared light emitting diode is used as the light emitting element, and a high sensitivity phototransistor is used as the light detecting element. The two elements are arranged so as to face each other, and objects passing between them are detected.

Features

- Highly precise position detection : 0.3 mm
- Fast response : $t_r, t_f = 6 \mu s$ (typ.)
- Small output current variation against change in temperature
- Small package used for saving mounting space

Absolute Maximum Ratings ($T_a = 25^\circ C$)

	Parameter	Symbol	Ratings	Unit
Input (Light emitting diode)	Reverse voltage (DC)	V_R	3	V
	Forward current (DC)	I_F	50	mA
	Power dissipation	P_D^{*1}	75	mW
Output (Photo transistor)	Collector current	I_C	20	mA
	Collector to emitter voltage	V_{CEO}	30	V
	Emitter to collector voltage	V_{ECO}	5	V
Temperature	Collector power dissipation	P_C^{*2}	100	mW
	Operating ambient temperature	T_{opr}	-25 to +85	$^\circ C$
	Storage temperature	T_{stg}	-30 to +100	$^\circ C$



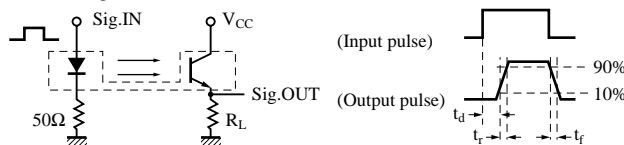
*1 Input power derating ratio is 1.0 mW/ $^\circ C$ at $T_a \geq 25^\circ C$.

*2 Output power derating ratio is 1.33 mW/ $^\circ C$ at $T_a \geq 25^\circ C$.

Electrical Characteristics ($T_a = 25^\circ C$)

	Parameter	Symbol	Conditions	min	typ	max	Unit
Input characteristics	Forward voltage (DC)	V_F	$I_F = 50mA$		1.2	1.5	V
	Reverse current (DC)	I_R	$V_R = 3V$			10	μA
	Capacitance between terminals	C_t	$V_R = 0V, f = 1MHz$		50		pF
Output characteristics	Collector cutoff current	I_{CEO}	$V_{CE} = 10V$			200	nA
	Collector to emitter capacitance	C_C	$V_{CE} = 10V, f = 1MHz$		5		pF
Transfer characteristics	Collector current	I_C^{*2}	$V_{CE} = 10V, I_F = 20mA$	0.3			mA
	Response time	t_r, t_f^{*1}	$V_{CC} = 10V, I_C = 1mA, R_L = 100\Omega$		6		μs
	Collector to emitter saturation voltage	$V_{CE(sat)}$	$I_F = 50mA, I_C = 0.1mA$			0.3	V

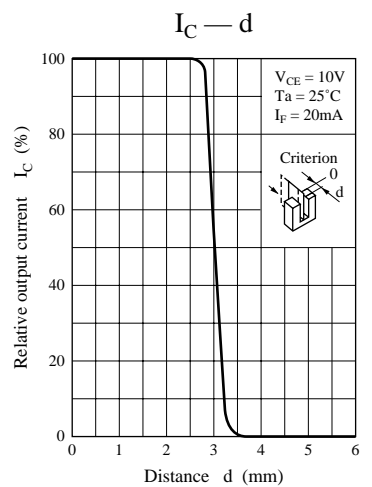
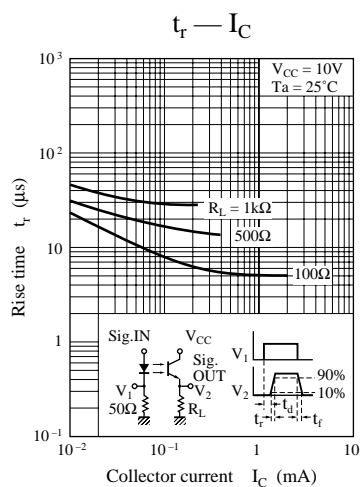
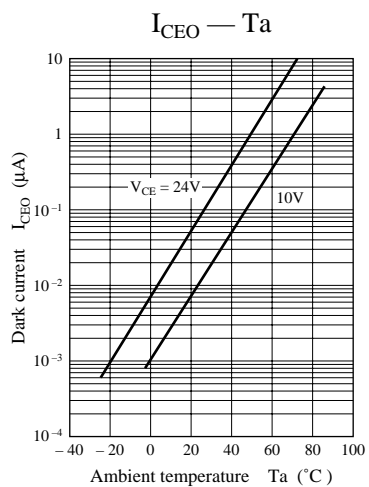
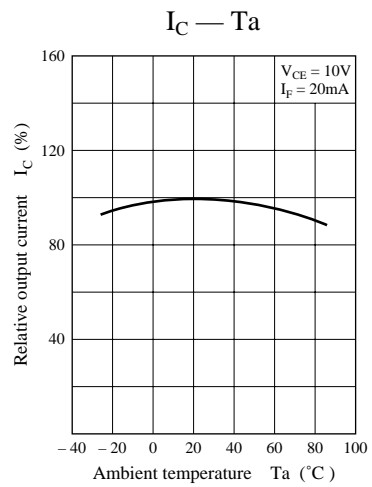
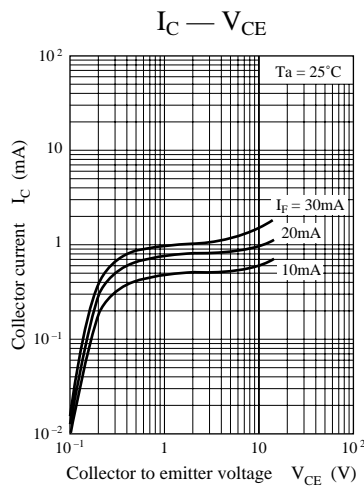
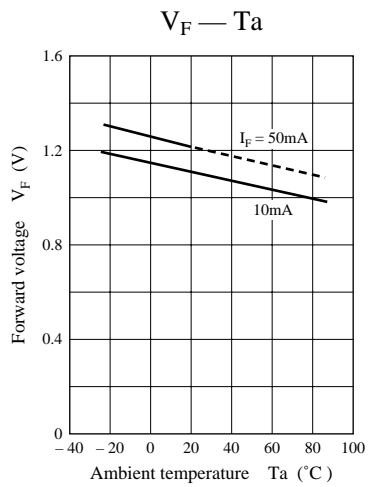
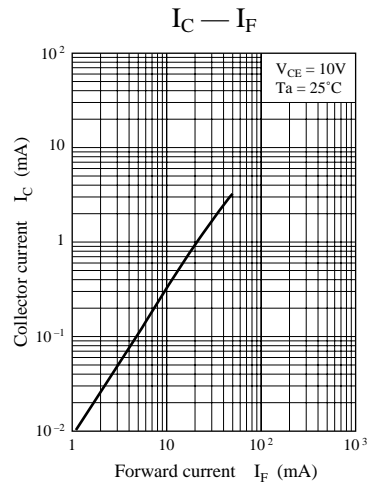
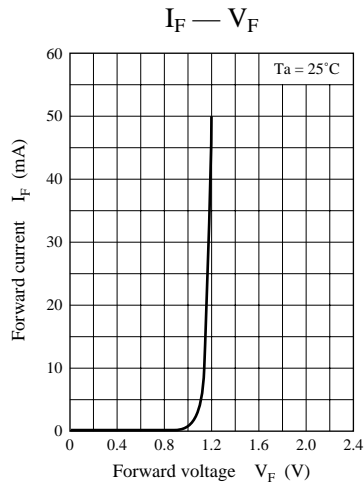
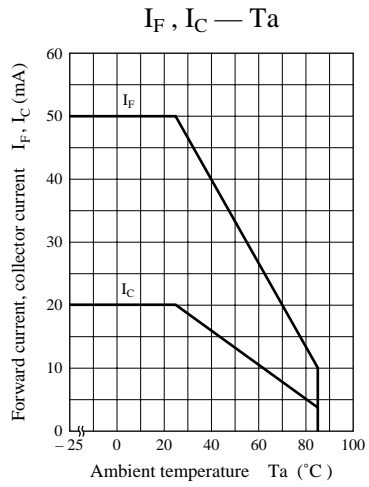
* Switching time measurement circuit



t_d : Delay time
 t_r : Rise time (Time required for the collector current to increase from 10% to 90% of its final value)
 t_f : Fall time (Time required for the collector current to decrease from 90% to 10% of its initial value)

*2 I_C classifications

Class	Q	R	S
I_C (mA)	0.3 to 0.85	0.75 to 2.15	> 1.85



Caution for Safety

 **DANGER**

Gallium arsenide material (GaAs) is used in this product.

Therefore, do not burn, destroy, cut, crush, or chemically decompose the product, since gallium arsenide material in powder or vapor form is harmful to human health.

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